AZA LAB / PETROLEUM & ANALYTICAL TESTING EQUIPMENT

DIGITAL DENSITY METER

AZA1091 | AZA1091A | AZA1091B | TECHNICAL DATASHEET



PRODUCT OVERVIEW

The AZA1091 series comprises three vibrating U-tube digital density meters for rapid liquid-density and specific-gravity measurement. A small liquid sample changes the oscillation frequency of a quartz-glass U-tube; the instrument calculates density using calibration data. The series offers Peltier temperature regulation, a touchscreen interface and manual or automatic sample introduction.

MODEL CONFIGURATIONS

AZA LAB model	Key distinction
AZA1091	Highest stated density accuracy; 5–70°C; extended measuring modes
AZA1091A	Mid-tier density accuracy; 5–70°C; electronic-signature support
AZA1091B	5–50°C; simpler data-management functions

MEASUREMENT PRINCIPLE & SYSTEM FEATURES

- Approx. 2–3 mL sample volume
- Peltier temperature control
- High-definition U-tube imaging
- Fast/accurate operating modes
- Manual/automatic injection with peristaltic pump

- Dry-air system
- Atmospheric-pressure compensation
- Calibration using dry air and distilled water.

TECHNICAL SPECIFICATIONS

AZA1091 | AZA1091A | AZA1091B

COMPLETE SIDE-BY-SIDE MODEL COMPARISON

Parameter	AZA1091	AZA1091A	AZA1091B
Density range	0.00000–3.00000 g/cm^3	0.0000–3.0000 g/cm^3	0.0000–3.0000 g/cm^3
Temperature range	5–70°C	5–70°C	5–50°C
Density accuracy	±0.0001 g/cm^3	±0.0003 g/cm^3	±0.0005 g/cm^3
Temperature accuracy	±0.05°C	±0.05°C	±0.1°C
Density repeatability	±0.00005 g/cm^3	±0.0001 g/cm^3	±0.0002 g/cm^3
Temperature precision	±0.02°C	±0.02°C	±0.05°C
Density resolution	0.00001 g/cm^3	0.0001 g/cm^3	0.0001 g/cm^3
Temperature resolution	0.01°C	0.01°C	0.01°C
Measuring modes	Density, SG, alcohol, API, Brix, urea; >30 built-in units; user-defined	Density / SG at 4, 20, 25°C and same-temperature water; user-defined	Density / SG at 4, 20, 25°C and same-temperature water
Sample injection	Manual / automatic (peristaltic pump)	Manual / automatic (peristaltic pump)	Manual / automatic (peristaltic pump)
Injection inspection	1080p HD camera; video / photo	1080p HD camera; video / photo	1080p HD camera; video / photo
Calibration	Dry air & distilled water; multi-point	Dry air & distilled water; multi-point	Dry air & distilled water; multi-point
Drying pump	Built-in DC air pump	Built-in DC air pump	Built-in DC air pump
Pressure compensation	Built-in atmospheric-pressure sensor	Built-in atmospheric-pressure sensor	Built-in atmospheric-pressure sensor
User permission levels	4	4	4
Electronic signature	Yes	Yes	Yes
Audit trail	Optional FDA software	Optional FDA software	Optional FDA software
Report format	PDF / Excel	PDF / Excel	PDF / Excel
U-tube material	Quartz glass	Quartz glass	Quartz glass
Minimum sample volume	Approx. 2–3 mL	Approx. 2–3 mL	Approx. 2–3 mL
Temperature control	Peltier / Pt resistance / PID / PWM	Peltier / Pt resistance / PID / PWM	Peltier / Pt resistance / PID / PWM
Display	10.1-inch colour LCD touch	10.1-inch colour LCD touch	10.1-inch colour LCD touch
Operating system	Android	Android	Android
Internal storage	128 GB (supplier: 128G)	128 GB (supplier: 128G)	128 GB (supplier: 128G)
User management	200	200	200
Method management	200	200	100
Test-result records	200,000	200,000	100,000
Communication	RS232 / USB / RJ45	RS232 / USB / RJ45	RS232 / USB
PC / LIMS connection	Yes	Yes	Yes
Optional printer	Thermal / stylus / Wi-Fi	Thermal / stylus / Wi-Fi	Thermal / stylus
Power supply	AC 100–240 V, 50/60 Hz, 120 W	AC 100–240 V, 50/60 Hz, 120 W	AC 100–240 V, 50/60 Hz, 120 W
Product dimensions	439 × 350 × 217 mm	439 × 350 × 217 mm	439 × 350 × 217 mm
Package dimensions	720 × 470 × 390 mm	720 × 470 × 390 mm	720 × 470 × 390 mm
Net weight	12 kg	12 kg	8.5 kg
Gross weight	20 kg	20 kg	15 kg

RELEVANT TEST METHODS & COMPLIANCE

The supplier brochure cites ASTM D4052, ASTM D5002, ASTM D3505, ISO 12185, IP 559 and relevant pharmacopoeias. The optional audit-trail software for DM-3005 and DM-3005A in relation to 21 CFR Part 11

OPERATIONAL ADVANTAGES

Integrated peristaltic pump for automatic sample introduction, measurement and cleaning; HD imaging to identify air bubbles in the U-tube; built-in SOP guidance; reduced handling of hazardous liquids; data storage, export and printing through supported interfaces.

APPLICATIONS & ORDERING INFORMATION

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INDUSTRY APPLICATIONS

Industry	Application
Beverage industry	Sugar concentration, food additives and soft-drink quality control
Food industry	Fruit juices, syrups, vegetable oils and processed foods
Brewing industry	Alcohol concentration in spirits, wine, beer and related beverages
Chemical industry	Density testing of urea, detergents, glycols, acids, alkalis and polymers
Pharmaceutical industry	Raw-material and finished-product quality control; relative density
Petrochemical industry	Crude-oil API index, gasoline, diesel, kerosene and additive-blending control
Machining / manufacturing	Cleaning agents used in metalworking, automotive and electronics
Flavours & fragrances	Flavours, spices, fragrance materials and additives
Testing agencies	Routine and third-party liquid-density measurements

MODEL SELECTION GUIDE

AZA model	Selection guidance
AZA1091	Choose where the highest supplier-stated density accuracy and the broadest built-in measurement modes are needed.
AZA1091A	Choose for 5–70°C measurement with electronic-signature and optional audit-trail capability.
AZA1091B	Choose for 5–50°C measurement with simpler management features and a lower stated instrument weight.

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